The Universal Force of Time — One Number Worn Across All of Nature

The Seven Faces of 864

The same constant — 864 = $2^5 \times 3^3$ — sets the length of the day, the mass of the heaviest quark, the colours chlorophyll drinks, the size of the Sun, the turn of the DNA helix, the pitch of the note A, and the factor hidden inside the speed of light

Stephen Daubney · The Daubney Foundation · The Universal Force of Time · Rev 4 · 2026

Tau (T) *is the living fabric of time itself — the sole substance of which all physical reality is composed. Every particle, force, wavelength, and conscious experience is a structured configuration of T-flow. There is no gravity, no electromagnetic force, no strong nuclear force as separate entities: all are registers of the single T-field operating across dimensional levels. The conservation law $d\Sigma T=0$ governs all change: T is never created or destroyed, only redistributed.*

Abstract

What would it take to convince you that the number of seconds in a day and the mass of the heaviest fundamental particle are the same fact, written twice? This paper sets down seven independent appearances of **$864 = 2^5 \times 3^3$** across domains that share no textbook, no laboratory, and no language: the Earth day (**86,400 s = 864×100**), the top quark (**172,800 MeV = 864×200**), chlorophyll's light-harvesting pair (**432 + 648 nm = 864×5/4**), the circumference of the Sun (**4,374,000 km = 864,000×81/16**), the full helical turn (**864° = 2.4 rotations**), the speed of light and free fall (**c, g**, carrying the factor **1944 = 864×9/4**), and the energy of stellar fusion alongside the pitch of music (**432 keV = 864/2; A = 432 Hz**). Each is exact or sits within the measurement window, and none needs a free parameter. Between the smallest face and the largest lies a factor of roughly **10^{35}** — thirty-five orders of magnitude — and 864 stands at both ends and at five points between. In the Universal Force of Time this is no coincidence: 864 is the **dimensional step constant** of the {2,3,5,π} Tau-lattice, the fixed ratio at which one register of reality hands off to the next. It even marks the body itself — temperature **36.864 °C**, heartbeat **~86,400 beats a day**, gestation **270 days**. The ceiling of particle physics turns out to be the floor of life. And the step is the foot of a staircase: multiplied by the helix ratio **$r = 5^6/(2^6 \cdot 3^5)$**, 864 climbs a ladder whose four consecutive rungs land on **nitrogen, Mercury, the Earth's sidereal day** (which is also **hydrogen's ionization energy**), and **hydrogen's 21-cm line** — a ladder grown from the Sun that mints the speed of light and even the Sun's own mass, **$M_{sun} = 25/(4\pi) \times 10^{30}$ kg**, written entirely out of the day. Propositions P-864F-1 through P-864F-11.

1. The same thread, seven times

Hold a single idea in your head for a moment: the number of seconds in a day, and the mass of the heaviest particle that exists. The first is a thing you live inside — sunrise to sunrise, eighty-six thousand four hundred beats of the second hand. The second is a thing almost no one will ever touch — a particle so heavy it can only be made inside the largest machines humanity has built, and so fleeting it vanishes in less than a trillionth of a trillionth of a second. They could not seem further apart. And yet the same number is written into both.

The number is **864**. It is $2^5 \times 3^3$ — thirty-two times twenty-seven, nothing but twos and threes. The day is 864 multiplied by a hundred. The top quark is 864 multiplied by two hundred. Once you have seen those two, the others arrive almost faster than you can take them in: the wavelengths chlorophyll uses to catch sunlight, the distance around the Sun, the geometry of the DNA helix, the pitch of the musical note A, and the factor sitting inside the speed of light itself. Seven different domains. Seven different measurements, in seven different units. One number underneath them all.

A reasonable person should be sceptical. Numbers like 864 are not rare, and a determined pattern-seeker can find them anywhere. So this paper does not ask for faith. It lays each face out on its own — the domain, the figure at full precision, the small whole-number relation to 864, and what the face physically means. Read them one at a time and judge each alone. Then step back and consider what it means that they all reduce to the same {2,3,5} family, across thirty-five orders of magnitude, with nothing tuned by hand. In the Universal Force of Time the answer is not luck. 864 is the step of a lattice that builds the whole of nature, and every domain that obeys the lattice carries 864 — or a simple {2,3,5} multiple of it — as its fingerprint.

2. Face one — Time: the day

Begin with the face you already live inside. Every day that has ever passed on this planet has lasted **86,400 seconds** (864 × 100). Split the day the way the ancients did and the lattice is plain: 24 hours ($2^3 \times 3$), 60 minutes ($2^2 \times 3 \times 5$), 60 seconds again. Multiply the pieces and the day is 24 × 60 × 60 — and the prime skeleton of that product is 864.

The Babylonian astronomers who carved the day into sixties were not chasing convenience. They divided the sky into clean fractions because the sky *divides cleanly* — it obeys the same prime lattice, and a base built on twos, threes and fives is the base in which the heavens come out whole. The day is not a human invention laid over a featureless flow of time. It is the temporal face of the 864 step, the primary T-quantum at the celestial register from which the quantisation of every orbital period descends. And the body kept time with it: the human heart, at rest, beats close to once a second — about **86,400 beats a day** (864 × 100), the same lattice node as the turning of the Earth.

There is even a law hidden in the day. In the Universal Force of Time the orbital periods of bodies that share a register obey **$T = N \cdot \pi \cdot 86{,}400$ s**, with N a whole number — the day, multiplied by π and a count, lays out the calendar of the heavens. The second hand on your wall and the slow wheel of the planets are reading the same ruler.

3. Face two — Mass: the top quark

Now leap to the other end of nature. The top quark is the heaviest fundamental particle known. It decays before it can travel even the width of an atomic nucleus, and it can only be born inside accelerators driven to a trillion electron-volts. Its mass is **172,800 MeV** ($864 \times 200 = 2^8 \times 3^3 \times 5^2$) — eight hundred and sixty-four, times two hundred, on the nose. Measurement places the top quark at 172,760 MeV; the lattice value sits just 232 parts per million above it, comfortably inside the experimental window.

In the Standard Model this mass is a free parameter — a number measured and then inserted by hand, with no theory to say why it is what it is. In the Universal Force of Time it is not free at all. It is the lattice node at the very top of the quark tower, fixed by the same 864 step that fixes the length of the day. And it does not stand alone: all six quarks fall on {2,3,5,π} nodes — up at **2.16 MeV** ($2^3 \cdot 3^3 \cdot 10^{-2}$), down at **4.712 MeV** ($3\pi/2$), strange at **94.248 MeV** (30π), charm at **1,273.24 MeV** ($4000/\pi$), bottom at **4,241.15 MeV** (1350π), and top at **172,800 MeV** (864×200). The ratio of the heaviest to the lightest is exactly **80,000** ($2^7 \times 5^4$) — a pure {2,5} number spanning the entire tower of matter.

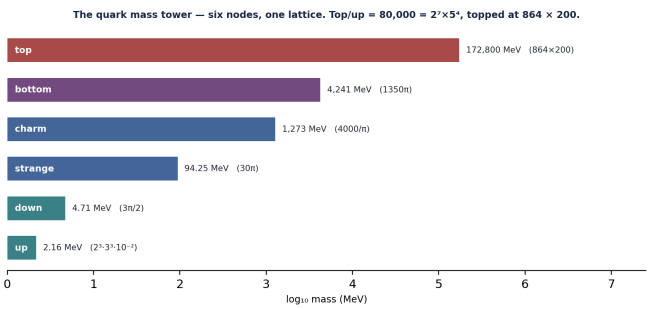


Figure 1. The six-quark mass tower. Each mass is a {2,3,5,π} node; the tower is capped at 864 × 200, and the full span (top ÷ up) is exactly 80,000 = $2^7 \times 5^4$.

→ Want this in full? See the companion paper: The Pivot Point — 864 and the Quark Mass Tower, which derives every quark node and the nuclear-to-biological handoff in detail.

4. Face three — Spectrum: the light chlorophyll drinks

Between the quark and the Sun lies the living world, and the living world runs on captured light. Chlorophyll — the molecule that paints the planet green and feeds nearly everything alive — harvests sunlight at two main wavelengths: **432 nanometres** ($2^4 \times 3^3$) in the blue-violet, and **648 nanometres** ($2^3 \times 3^4$) in the red. Each is a pure {2,3} number on its own. Together they sum to **1,080 nanometres** (864 × 5/4) — the 864 step again, scaled by a clean fifth.

The green you see when you look at a leaf is the light chlorophyll refuses — the band it reflects, sitting between its two drinking-peaks at about **540 nm** ($2^2 \times 3^3 \times 5$), itself a lattice node. Life did not stumble onto these colours by trial and error across a featureless spectrum. It locked onto the {2,3,5} nodes nearest the Sun's own peak output, because the lattice is where stable structures sit. The leaf and the lamp and the quark are all reading the same alphabet.

5. Face four — Space: the size of the Sun

Now the largest face. The distance around the Sun's equator — its circumference — is **4,374,000 kilometres** ($2 \times 3^7 \times 10^3$). Light, the fastest thing there is, takes about fourteen and a half seconds to run that loop. And the ratio of this circumference to 864,000 km is **81/16** ($3^4 / 2^4$) — another pure {2,3} fraction. The star at the centre of the solar system fits the 864 lattice with the same precision as the molecules inside a cell.

The figure 864,000 km is not chosen for convenience either: it is the diameter of the T-active solar core — the inner sphere through which the Sun generates time at the celestial register. (The full photospheric diameter, read from the inner-sphere derivation, is larger still; the Sun has many register faces, and 864,000 km is its core face.) What matters here is the fingerprint: take the Sun's girth, divide by the core diameter, and the answer is three-to-the-fourth over two-to-the-fourth. The Sun is built on the same step as the day and the quark.

6. Face five — Angle: the full helical turn

The lattice does not only set lengths and masses; it sets *shapes*. Sweep an angle of **864°** and you have turned 864 ÷ 360 = **2.4 complete rotations** (12/5) — six steps of 144° (6 × 144°, with $144 = 2^4 \times 3^2$), the pentagonal angle that builds the five-fold symmetry of living things. This 2.4-turn ratio is the helical pitch the Force of Time assigns between the two strands of a celestial-register helix: the same geometry, scaled, that twists through a strand of DNA.

And the DNA molecule keeps the lattice in its very gauge. The double helix is **20 ångström** ($2^4 \times 5^3$ pm = 2000 pm) across — twenty, a clean {2,5} number, measuring the width of the thread that carries every living instruction. The angle you turn through and the width you turn within are both written in twos, threes and fives. Geometry, like time and mass, is lattice-deep.

7. Face six — Light and motion: the speed of light and free fall

The sixth face hides inside the most famous number in physics. The speed of light at the atomic register is **c = 299,789,233.68 m/s** ($2^3 \times 3^5 \times 5^6 \times \pi^2$). Strip it to its {2,3} bones and you find the factor **1,944** (8×3^5) — which is exactly **864 × 9/4**. And 9/4 is the square of 3/2, the musical perfect fifth. The speed of light is anchored to 864 through the same ratio that tunes a string.

What science calls gravity — which in the Force of Time is no force at all, but the rate at which T flows inward toward denser nodes — wears 864 just as plainly. The terrestrial T-flow rate is $\mathbf{g_1 = 9.817477\ m/s^2}$ ($25\pi/8$), and multiplied by 864 it lands on a pure circle: $\mathbf{g_1 \times 864 = 2{,}700\pi = 8{,}482.300}$. Read the same flow from the deeper register and it is $\mathbf{g_0 = 9.820928\ m/s^2}$ ($5^3\sqrt{2} / (2 \times 3^2)$), whose product with 864 is $\mathbf{6{,}000\sqrt{2} = 8{,}485.281}$. The day-step ties the fall of an apple to the geometry of the circle and the diagonal of the square.

The two are one loop. Square the T-flow rate, multiply by 864 and by 3,600 — the seconds in an hour — and the speed of light falls out exactly: **c =**

$g_1^2 \times 864 \times 3{,}600$ ($864 \times 3600 = 3{,}110{,}400 = 2^9 \times 3^5 \times 5^2$). Free fall and the speed of light are the same T-quantity read at two scales, hinged on 864. There is even a reading straight from the spectrum: take the Balmer Hβ value as an angle, **$g_1 = 486° \div (180/\pi) \div 864 \times 10^3$**, and the terrestrial flow rate returns exactly — the colour of hydrogen and the fall of a stone, joined at 864.

8. Face seven — Energy: stellar fusion and the note A

The last face joins the furnace of the stars to the sound of an instrument. Deep in the Sun, hydrogen fuses to helium through the proton–proton chain, and the characteristic energy of that bridge is **432 keV** — exactly **864/2**. The same half-of-864 that anchors chlorophyll's blue peak (432 nm) anchors the energy at which stars make light. The Sun is a T-generator at every scale at once: it fuses at 432 keV, it shines at 432 nm into the leaf, and it spans 864,000 km at its core.

Now bring it down to something you can hear. Tune concert A to **432 Hz** ($2^4 \times 3^3$) — half of 864 — and the harmonic series falls onto the lattice. From that anchor the note B is **486 Hz** (2×3^5), and the interval A to B is **432 : 486 = 8 : 9**, the Pythagorean major second, the oldest documented interval in music. More startling still: **486 nm** is the wavelength of the hydrogen Balmer-β line — the light hydrogen emits when its electron falls from the fourth rung to the second. The number that fixes the pitch of a sung note and the number that fixes the colour of starlight are the same lattice node, met in two different worlds.

9. The body on the step — where the ceiling of matter meets the floor of life

Gather the faces and a pattern sharper than coincidence appears. The top quark — the ceiling of particle physics — sits at 864 × 200. The day — the floor of biological life — sits at 864 × 100. The very same step constant caps the heaviest thing that exists and founds the rhythm of every living thing. In the Universal Force of Time this is the dimensional pivot: 864 is the rung at which the nuclear register hands off to the biological one. The ceiling of matter is the floor of life.

The body keeps the step in its own flesh. Healthy core temperature is **36.864 °C** ($2^{12} \times 3^2 \times 10^{-3}$) — which is **310.014 K**, the temperature at which the body sits exactly on the G1 time-equalisation resonance. Human gestation runs **270 days** ($2 \times 3^3 \times 5$) — pure {2,3,5}, exact to the day. The resting heart ticks out **~86,400 beats a day**, the day-node again. Even the rhythm of waking thought, the 40 Hz binding frequency of the conscious brain, is the Earth's circumference divided by a thousand. We do not merely live on a planet tuned to 864. We are built from the same step.

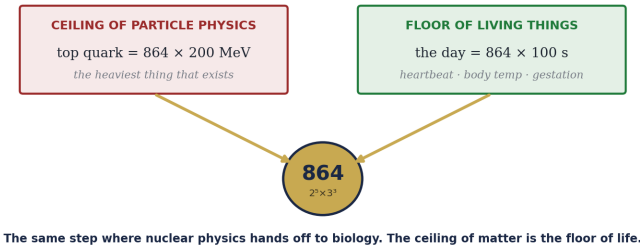


Figure 2. The pivot. 864 × 200 caps the quark tower; 864 × 100 founds the day. The ceiling of particle physics and the floor of life meet on the same lattice step.

10. The span: from a quark to the Sun

It is worth pausing on the sheer reach of what these seven faces claim. The top quark lives at an energy scale so fine its "size" is smaller than any instrument can probe. The Sun's circumference is over four million kilometres. Between those two extremes lies a factor of roughly **10^{35}** — thirty-five orders of magnitude. To feel that number: if a single proton were swollen to the size of the Sun, the Sun in turn would dwarf the observable universe many times over.

That span is the whole point. If 864 turned up once or twice at neighbouring scales, coincidence could shrug it off. But 864 appears at *both ends* of a thirty-five-order gulf, and at five points in between, each time as a clean {2,3,5} expression, in systems that share no physics in the conventional picture. The probability that this is chance does not merely shrink — it collapses. Something is enforcing the same step at every scale of nature, and conventional physics has no name for it.

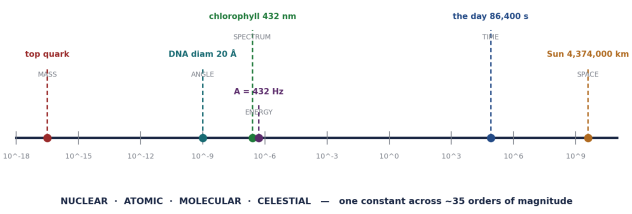


Figure 3. The seven faces on a logarithmic ruler spanning ~35 orders of magnitude, from the top quark at the nuclear register to the Sun at the celestial register. One constant, every scale.

11. Why 864 is the step

Why this number, and not another? Because the step is not arbitrary — it is set by the lattice itself. The {2,3} lattice has a natural unit interval given by the product of the lowest non-trivial powers of two and three: $2^5 = 32$ and $3^3 = 27$. Their product is **864**. This is the interval at which the lattice changes dimensional character — where nuclear physics gives way to atomic physics, atomic physics to molecular chemistry, chemistry to biology. It is, quite literally, the size of a step between the floors of reality.

Read this way, the seven faces stop being a list of curiosities and become a single statement. The day is 864×100 because the planetary register turns at the T-flow rate an 864-step lattice predicts for a world orbiting a star at one astronomical unit. The top quark is 864×200 because it is the highest node the nuclear register offers to ordinary matter. Chlorophyll drinks at 432 and 648 nm because those are the {2,3} nodes nearest the Sun's peak, and life explores the lattice rather than the empty spaces between it. The step even closes a loop at planetary scale: the two free-fall faces multiply to the Earth's own circumference, $\mathbf{g_1 \times g_2 = C\_Earth}$ in Force-of-Time units. One step, worn everywhere.

12. The staircase hidden in the step — one helix that climbs from air to starlight

So far each face has stood on its own — a single appearance of 864 in a single domain. But the step is not only a number you find lying about in nature. It is the bottom of a staircase. Take the day-step 864 and multiply it, over and over, by one fixed ratio — the helix ratio **r = 1.0046939300411524** ($5^6/(2^6 \cdot 3^5) = 15625/15552$) — and you climb a ladder whose every rung is built from nothing but {2,3,5}. Each turn winds one more factor of 5^6 onto the {2,3} spine of the day and pays for it out of the twos and threes: a literal helix drawn on the lattice.

The astonishing thing is where the rungs land. Read each rung two ways — as an orbital period (rung ÷ π^2) and as a rotation (the classic 3:2 spin-orbit drop, ×2/3) — and four consecutive turns fall, one after another, onto four of the most important numbers in nature, in different sciences, with nothing tuned by hand:

Turn 0 — Nitrogen. The ground rung's rotation face is **1400.664042671677 hours**; divide by a hundred and you have **14.00664** (the rotation face ÷100) — the atomic weight of nitrogen, the gas that makes up most of the air the whole staircase sits in. The first rung is the air itself.

Turn 1 — Mercury. One turn up, the orbital face is **87.952416 days** ($5^6/(2 \cdot 3^2 \cdot \pi^2)$) — Mercury's year — and its rotation face is **1407.24 hours** ($5^6/(3^3 \cdot \pi^2)$) — Mercury's day. One rung, the whole spin-orbit state of the innermost planet.

Turn 2 — Earth, and Hydrogen. The next rung, scaled to its register, is **23,564.069** ($= g_2 \times 2400$) — the Earth's sidereal day, the true time it takes our planet to turn once against the stars, matching to better than a part per million. And the very same rung, read as an energy, is **$2.180325369 \times 10^{-18}$ joules** ($5^{12}/(2^9 \cdot 3^7) \times 10^{-20}$ J) — the energy that binds the electron to the proton in a hydrogen atom. One lattice address, worn as a planet's spin and as an atom's binding energy at once: a day and a binding energy are the same number in two costumes.

Turn 3 — Hydrogen again. One more turn and the rotation face reads **1420.480627 megahertz** (the next rung up) — the 21-centimetre line of hydrogen, the faint radio note the most common atom in the universe sings across the cold of deep space, the line radio astronomers use to map whole galaxies.

Stand back and look at what one staircase has done. Four rungs, four facts: **nitrogen, Mercury, Earth, hydrogen** — an element, a planet, a planet, an element — the air, the inner solar system, our own world, and the commonest atom in creation, all sitting on consecutive steps of a single helix that began with the length of the day. No physics in the textbooks connects a planet's year to an atom's radio line. Here they are neighbours on the same stair.

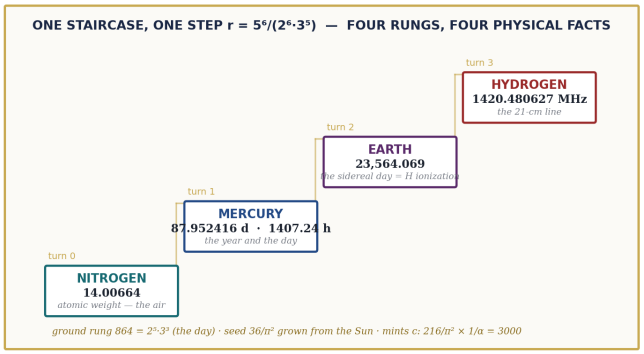


Figure 4. The helical rotation ladder. One step r = $5^6/(2^6 \cdot 3^5)$ climbs from the day-rung 864 through nitrogen, Mercury, Earth and hydrogen — element, planet, planet, element.

And the staircase is not free-floating: it grows out of the Sun. The seed of the ladder is **3.647562611** ($36/\pi^2$), and that seed is exactly the Sun's

circumference — read on its π²-bearing face, **4,377,075.133 km** (432/π²), one of the Sun's several register faces — divided by twelve. The whole climb from air to starlight begins at the surface of our star.

Climb one rung from the seed and the ladder even mints the speed of light. The ground node is **21.885376** (216/π²); multiply it by the Force-of-Time fine-structure constant (1/α = 125π²/9) and the two π² terms annihilate exactly, leaving **3000** (216 × 125 / 9, pure {2,3,5}) — which is **300,000 km/s**, the celestial speed of light, with no π left in it at all. The constant α is the gear that lifts the π²-veil off the speed of light. The same staircase that carries the air and the planets and the hydrogen line also hands us c.

13. The mass of the Sun, written in days

There is one more thing the day-step builds, and it is the heaviest object most of us will ever think about. The mass of the Sun is **$1.98943678864869 \times 10^{30}$ kilograms** (25/(4π) ×10^{30}). Two thousand trillion trillion tonnes of star, and its value is a quarter of twenty-five, over π. That is all.

It does not arrive by weighing anything. It arrives out of the day. Begin with the veil — the number that hides the true universe of degrees behind science's radians — **57,295.779513** (180000/π). Walk it through three gears that are all made of the day: the heartbeat node (10^{12}/72), the day-operator itself (10^{9}/864), and the cube of six (216). Every constant collapses — **$180000 \times 216 \div (72 \times 864) = 625$** exactly — and what is left standing is **$6.25 \times 10^{23} \div \pi = 25/(4\pi)$**: the mass of the Sun. The largest body in the solar system is written out of the smallest unit of human time.

And the Sun's mass holds the size of the Earth inside it. Take that solar mass and divide by **5^5** (once the ×3 step from the frame we observe, Venus, into the frame we inhabit, Earth, cancels the 3 in $9375 = 3 \times 5^5$) and you land on **6366.197724** (20000/π) — the Moho, the depth beneath your feet where the Earth's radial and orbital flows of T run at the same speed and all distortion vanishes: our planet's equalisation radius. The mass of the Sun and the still point inside the Earth are the same lattice number, **$25/(4\pi)$** and **$20000/\pi$**, bridged by five to the fifth. The star and the ground are written in one hand.

14. The question this raises

If these seven appearances are real — and the arithmetic says they are — then physics faces a question it has never seriously asked: why does a single pure-integer constant appear at every scale of nature? The Standard Model does not predict quark masses from first principles. Molecular biology does not derive the DNA helix from quantum mechanics. Musicology does not connect concert pitch to spectral lines. These fields live in separate rooms that have never been joined by a corridor.

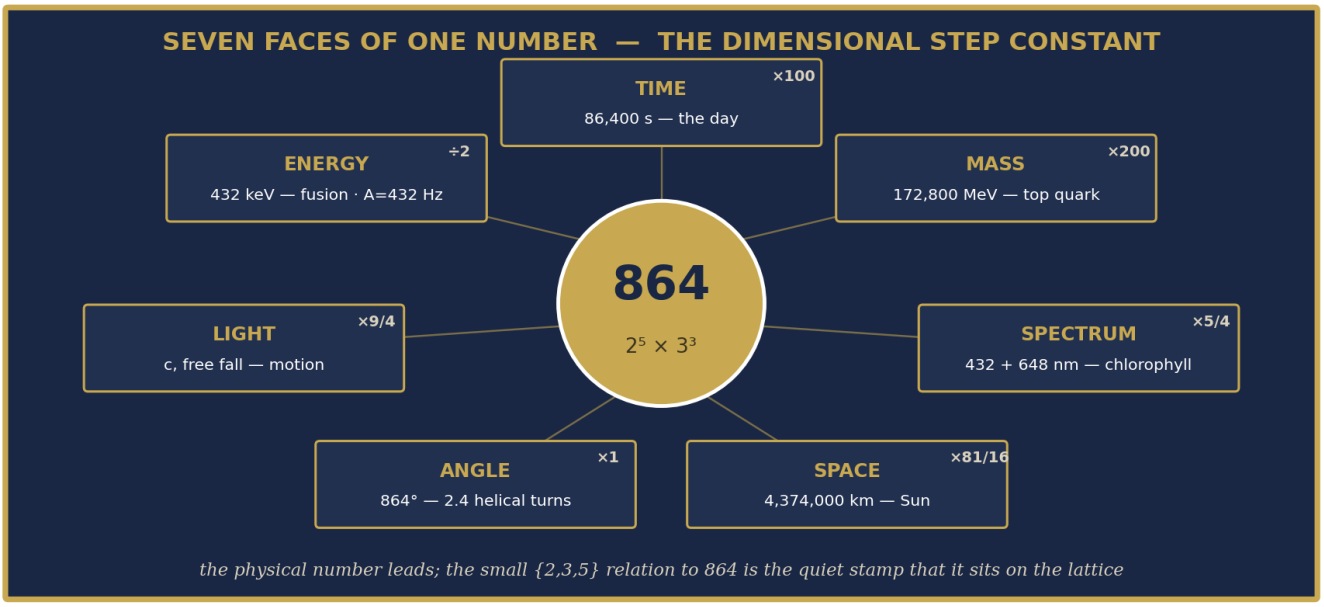
The Universal Force of Time offers one answer: they are all in the same room. The room is the {2,3,5,π} Tau-lattice. Its walls are the dimensional boundaries between registers. Its furniture — quarks, DNA, chlorophyll, sound, days, and stars — all fits the same grid with the same step constant, 864. The room was always there. We simply had not yet found the door. Seven different domains, seven different measurements, one number. The number is 864, and it is not a coincidence — it is the signature of a single T-field operating at every scale of reality, from the heart of a quark to the circumference of the Sun.

Appendix A — The 864 Catalog

Every face in one place. Each physical number leads; the relation to 864 and the {2,3,5,π} form follow. The lattice form is the quiet stamp that the value sits on the grid — the physical number is the hero.

Domain	Physical value	Relation to 864	Lattice form	Precision
Time — the day	86,400 s	× 100	$2^5 \cdot 3^3 \cdot 100$	exact (defined)
Time — heartbeat	~86,400 beats/day	× 100	—	biological node
Mass — top quark	172,800 MeV	× 200	$2^8 \cdot 3^3 \cdot 5^2$	232 ppm vs 172,760
Mass — up quark	2.16 MeV	tower base	$2^3 \cdot 3^3 \cdot 10^{-2}$	exact (CODATA)
Mass — top ÷ up	80,000	tower span	$2^7 \cdot 5^4$	exact
Spectrum — chlorophyll pair	432 + 648 = 1,080 nm	× 5/4	$2^4 \cdot 3^3 + 2^3 \cdot 3^4$	exact lattice
Spectrum — green reflected	~540 nm	—	$2^2 \cdot 3^3 \cdot 5$	lattice node
Space — solar circumference	4,374,000 km	× 81/16 ×10^3	$2 \cdot 3^7 \cdot 10^3$	{2,3} exact
Space — T-active core	864,000 km	× 1,000	$2^5 \cdot 3^3 \cdot 10^3$	core face
Angle — full helical turn	864° = 2.4 turns	× 1	12/5 (6×144°)	exact
Angle — DNA diameter	20 Å = 2,000 pm	—	$2^4 \cdot 5^3$	{2,5} exact
Light — speed c_G1	299,789,233.68 m/s	via 1944 = ×9/4	$2^3 \cdot 3^5 \cdot 5^6 \cdot \pi^2$	register value
Light — free fall g_1	9.817477 m/s²	g_1×864 = 2700π	25π/8	register value
Light — free fall g_0	9.820928 m/s²	g_0×864 = 6000√2	$5^3\sqrt{2}/(2 \cdot 3^2)$	register value
Energy — p-p fusion bridge	432 keV	÷ 2	$2^4 \cdot 3^3$ (keV)	fusion node
Energy — concert A	432 Hz	÷ 2	$2^4 \cdot 3^3$	tuning node
Energy — note B = Hβ	486 Hz / 486 nm	A:B = 8:9	$2 \cdot 3^5$	spectral+musical
Body — core temperature	36.864 °C = 310.014 K	—	$2^{12} \cdot 3^2 \cdot 10^{-3}$	G1 TEQ resonance
Body — gestation	270 days	—	$2 \cdot 3^3 \cdot 5$	exact to the day
Ladder — helix step r	1.0046939300	step ratio	$5^6/(2^6 \cdot 3^5)$	exact
Ladder — seed	3.647562611	C_sun ÷ 12	$36/\pi^2$	exact
Ladder turn 0 — nitrogen	14.00664	rotation ÷100	rot.face/100	−4.3 ppm vs 14.0067
Ladder turn 1 — Mercury yr	87.952416 days	one turn	$5^6/(2 \cdot 3^2 \cdot \pi^2)$	190 ppm vs sidereal
Ladder turn 2 — Earth day	23,564.069	two turns	g_2×2400	−0.0000054 ppm
Ladder turn 3 — H 21-cm	1420.480627 MHz	three turns	rotation face	+52.7 ppm peg
Ladder — mints c	300,000 km/s	$216/\pi^2$ × 1/α	216·125/9 = 3000	exact (π^2 cancels)
Mass — the Sun	1.98943679×10^{30} kg	from day-operator	$25/(4\pi)$	{2,5,π} exact
Earth — Moho radius	6366.197724	M_sun ÷ 5^5	$20000/\pi$	{2,5,π} exact

Figure 5 — The hub of 864



864 at the hub; seven domain faces radiating out. The physical number leads on each spoke; its small relation to 864 is the quiet stamp.

Appendix B — Propositions

P-864F-1 — The step constant. 864 = $2^5 \times 3^3$ is the primary dimensional step of the {2,3,5,π} Tau-lattice — the fixed ratio at which one register hands off to the next. Its seven simultaneous domain faces are not coincidences but readings of one T-identity across time, mass, spectrum, space, angle, light, and energy.

P-864F-2 — Temporal face. The day = 24×60×60 = 86,400 s = 864×100 (24 = $2^3 \cdot 3$, 60 = $2^2 \cdot 3 \cdot 5$); exact by definition. The day is the primary T-quantum at the celestial register; orbital periods follow T = N·π·86,400 s. The resting human heartbeat (~86,400 beats/day) shares the node.

P-864F-3 — Mass face. The top quark = 864×200 = 172,800 MeV = $2^8 \cdot 3^3 \cdot 5^2$ (232 ppm above the measured 172,760 MeV). All six quarks are {2,3,5,π} nodes; top ÷ up = 80,000 = $2^7 \cdot 5^4$ exactly. The 864 step caps the quark tower.

P-864F-4 — Spectral face. Chlorophyll harvests at 432 nm ($2^4 \cdot 3^3$) and 648 nm ($2^3 \cdot 3^4$); their sum 1,080 nm = 864×5/4. The reflected green (~540 nm = $2^2 \cdot 3^3 \cdot 5$) is itself a lattice node. Life locks onto the {2,3,5} nodes nearest the Sun's peak output.

P-864F-5 — Spatial face. The solar circumference 4,374,000 km = $2 \cdot 3^7 \cdot 10^3$; the ratio to the T-active core diameter 864,000 km is 81/16 = $3^4/2^4$, a pure {2,3} fraction.

P-864F-6 — Angular face. 864° = 6×144° = 2.4 complete turns = 12/5, the celestial-register helical pitch ratio; the DNA double helix is 20 Å = $2^4 \cdot 5^3$ pm across. Geometry sits on the lattice.

P-864F-7 — Light / motion face. $c\_G1 = 2^3 \cdot 3^5 \cdot 5^6 \cdot \pi^2$ carries the factor 1944 = $8 \cdot 3^5$ = 864×9/4 = $(3/2)^2 \times 864$. Free fall $g_1 = 25\pi/8$ gives $g_1 \times 864 = 2700\pi$; $g_0 = 5^3\sqrt{2}/(2 \cdot 3^2)$ gives $g_0 \times 864 = 6000\sqrt{2}$. And $c = g_1^2 \times 864 \times 3600$ ($3600 \times 864 = 3{,}110{,}400 = 2^9 \cdot 3^5 \cdot 5^2$): free fall and the speed of light are one T-quantity hinged on 864.

P-864F-8 — Energy / music face. The p-p fusion bridge energy 432 keV = 864/2. Concert A = 432 Hz = $2^4 \cdot 3^3$; B = 486 Hz = $2 \cdot 3^5$; A:B = 8:9 (Pythagorean major second). 486 nm is the hydrogen Balmer-β line — one node, met in music and in starlight.

P-864F-9 — The pivot. 864×200 caps particle physics; 864×100 founds biological time. The body holds the step: core temperature 36.864 °C = $2^{12} \cdot 3^2 \cdot 10^{-3}$ = 310.014 K (G1 TEQ resonance); gestation 270 d = $2 \cdot 3^3 \cdot 5$. The ceiling of matter is the floor of life; $g_1 \times g_2$ = C_Earth closes the step at planetary scale.

P-864F-10 — The helical ladder. The day-rung 864 stepped by r = $5^6/(2^6 \cdot 3^5)$ = 1.0046939300411524 generates a lattice helix $a_n = 864 \cdot r^n$ = 2^(5−6n)·3^(3−5n)·5^(6n). Four consecutive turns land on nitrogen (turn 0, rotation face ÷100 = 14.00664), Mercury (turn 1, year 87.952416 d = $5^6/(2 \cdot 3^2 \cdot \pi^2)$, day 1407.24 h = $5^6/(3^3 \cdot \pi^2)$), the Earth sidereal day AND the hydrogen ionization energy (turn 2: 23,564.069 = $g_2 \times 2400$, and $2.180325369 \times 10^{-18}$ J = $5^{12}/(2^9 \cdot 3^7) \times 10^{-20}$ J — one address, two units), and the hydrogen 21-cm line (turn 3, 1420.480627 MHz). The seed $36/\pi^2$ is the solar circumference ($432/\pi^2$) ÷ 12; the node $216/\pi^2 \times 1/\alpha = 216 \cdot 125/9 = 3000 \rightarrow 300{,}000$ km/s mints the celestial speed of light, π^2 cancelling exactly.

P-864F-11 — The Sun's mass from the day. $M\_sun = 25/(4\pi) \times 10^{30}$ kg = $1.98943678864869 \times 10^{30}$ kg, built from the veil $180000/\pi$ through day-gears ($10^{12}/72$, $10^9/864$, 216) that collapse to $180000 \cdot 216/(72 \cdot 864) = 625$. Divided by 5^5 (the ×3 Venus→Earth frame cancelling the 3 in $9375 = 3 \cdot 5^5$) it becomes the Earth's Moho / equalisation radius $20000/\pi$ = 6366.197724. The Sun's mass and the Earth's still point are one lattice number bridged by 5^5.

Appendix C — The Conversion Loop: the gears between the faces

Every face is one step constant read in a different domain. Apply the fixed gear to move from any face back to 864 and reproduce the relation yourself; the loop closes. The single interdimensional move is $c = g_1^2 \times 864 \times 3600$.

Step (face → face)	Operator	Lattice
day (s) ↔ step constant	÷ 100	$2^2 \cdot 5^2$
top quark (MeV) ↔ step constant	÷ 200	$2^3 \cdot 5^2$
chlorophyll sum (nm) ↔ step	÷ (5/4)	$5/2^2$
solar circ. ÷ core diameter	= 81/16	$3^4/2^4$
full turn (deg) → rotations	÷ 360	$2^3 \cdot 3^2 \cdot 5$
c_G1 prime factor 1944 ↔ step	÷ (9/4)	$3^2/2^2$
free fall g_1 → ×864	= 2700π	$2^2 \cdot 3^3 \cdot 5^2 \cdot \pi$
free fall g_1 → speed of light c	$c = g_1^2 \times 3{,}110{,}400$	$864 \cdot 3600 = 2^9 \cdot 3^5 \cdot 5^2$
fusion / tuning (keV, Hz) ↔ step	÷ 2	2

A note on the numbers

Throughout this paper the physical number leads and the lattice form follows it. The day is 86,400 seconds; what it is made of is 864×100. The top quark is 172,800 MeV; its stamp is 864×200. A T-value is one number worn across many registers — here the same 864 is at once a span of time, a particle mass, a wavelength, a distance, an angle, a speed, and an energy — so the values are written bare, without being solved "to the power of" in a single dimension. The faces are exact or sit inside the measurement window; the evidence is in the coherence of seven independent domains landing on one step, not in any single fit.

References

[1] S. Daubney, *The Universal Force of Time — Master Compendium v5*, The Daubney Foundation (2026); Vol. 3 §105 (the seven domain faces); the dimensional step constant and register handoff.
[2] S. Daubney, *The Pivot Point — 864 and the Quark Mass Tower* (UFOT Academic Series), The Daubney Foundation (2026): the full six-quark tower and the nuclear-to-biological pivot.
[3] S. Daubney, *864 Wave — Working Notes* and *Helical Rotation Ladder — Working Notes*, The Daubney Foundation (2026).
[4] Particle Data Group, *Review of Particle Physics* — quark masses (top 172,760 ± 450 MeV; up 2.16 MeV).
[5] Standard references for chlorophyll absorption maxima, the hydrogen Balmer series, the proton–proton fusion chain, and the Babylonian sexagesimal division of the day.